

## **REMARKS**

Entry of the foregoing amendment is respectfully requested.

### **Summary of Amendment**

By the foregoing amendment, an obvious error in the paragraph bridging pages 49 and 50 of the present specification is corrected (changing “0.922/ml” to “0.922 g/ml”). Support for this amendment can be found, for example, at page 9, lines 8-11 of the present specification.

### **Summary of Office Action**

As an initial matter, Applicants note with appreciation that the Examiner has indicated consideration of the Information Disclosure Statements filed December 2, 2005 and February 2, 2007 by returning signed and initialed copies of the Forms PTO-1449 submitted therein.

Applicants further note with appreciation that the present Office Action indicates that the claim for priority is acknowledged and that copies of certified copies of the priority documents have been received by the Patent and Trademark Office from the International Bureau.

Claims 1, 2 and 5-7 are rejected under 35 U.S.C. 102(b) as allegedly being anticipated by JP 1-284536 to Takasama et al. (hereafter “TAKASAMA”) when considered with the prior art allegedly admitted in the present specification.

Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over TAKASAMA in view of Wicher et al., U.S. Patent No. 6,608,150 (hereafter "WICHER") and the prior art allegedly admitted in the present specification.

Claim 4 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over TAKASAMA in view of Senda et al., U.S. Patent No. 4,368,218 (hereafter "SENDA") and the prior art allegedly admitted in the present specification.

Claims 11, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over TAKASAMA in view of Smith et al., U.S. Patent No. 3,963,816 (hereafter "SMITH") and the prior art allegedly admitted in the present specification.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over TAKASAMA in view of SMITH and the prior art allegedly admitted in the present specification.

Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over TAKASAMA in view of WICHER and further in view of SMITH and the prior art allegedly admitted in the present specification.

Claims 1-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1 and 3-9 of co-pending application No. 10/541,391.

#### Response to Office Action

Reconsideration and withdrawal of the rejections of record are respectfully requested, in view of the following remarks.

***Response to Rejection of Claims 1, 2 and 5 -7 under 35 U.S.C. § 102(b)***

Claims 1, 2 and 5-7 are rejected under 35 U.S.C. 102(b) as allegedly being anticipated by TAKASAMA when considered with the prior art allegedly admitted in the present specification. The rejection essentially asserts that TAKASAMA in combination with the prior art allegedly admitted in the instant specification teaches all of the elements that are recited in the present claims at least inherently.

Applicants respectfully traverse this rejection. Specifically, it is pointed out that present claim 1 recites, *inter alia*, that 0.1 to 0.9 parts by weight of a polymerization initiator relative to 100 parts by weight of styrene-based monomer are employed and that the polymerization of the styrene-based monomer is carried out at a temperature of (T-15) to (T-8) or (T+1) to (T+5) °C (where T°C is the melting point of the LLDPE-based resin beads). In contrast, (a) the process of TAKASAMA is carried out by using 1.0 to 3.0 parts by weight of a polymerization initiator relative to 100 parts by weight of styrene-based monomer (as correctly noted at the bottom of page 2 of the present Office Action) and (b) the Example of TAKASAMA discloses a polymerization at a temperature of (T-7) °C (122 -115°C). For these reasons alone, TAKASAMA does not anticipate the method recited in present claims 1 and 2.

Moreover, due to the above-noted differences beads obtained by the method of claims 1 and 2 are different from the beads obtained by the process of TAKASAMA and, in particular, have a gel content which is higher than 2 wt.-% (see, e.g., paragraph bridging pages 3 and 4 of the present specification and Fig. 1), wherefore this document does not anticipate claims 5-7, either.

Applicants submit that for at least all of the foregoing reasons, TAKSAMA fails to anticipate the subject matter of any of the present claims, wherefore withdrawal of the rejection under 35 U.S.C. 102(b) over this document is warranted and respectfully requested.

***Response to Rejection of Claims 3 and 5 under 35 U.S.C. § 103(a)***

Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over TAKASAMA in view of WICHER. The rejection essentially asserts that TAKASAMA discloses a method for producing expandable beads of a styrene-modified LLDPE-based resin which differs from the method recited in the rejected claims only in that it does not comprise a second polymerization of the styrene-based monomer. In this regard, the rejection relies on WICHER, alleging that this document teaches a step-wise process for polymerizing styrene monomer using two different temperature ranges and that one of ordinary skill in the art would have been motivated to combine the teachings of TAKASAMA and WICHER, thereby arriving at the subject matter of claims 3 and 8.

Applicants respectfully traverse this rejection as well. Specifically, there is no motivation for one of ordinary skill in the art to combine the teachings of TAKASAMA and WICHER. In this regard, it is noted that TAKASAMA is concerned with the polystyrene-modification of pre-formed beads of a LLDPE-based resin, i.e., a grafting reaction, whereas WICHER is concerned with the production of beads made by a homopolymerization of styrene and does not mention any preformed beads at all, let alone beads of a resin which is completely different from polystyrene, such as LLDPE-

based resin beads. In other words, WICHER does not describe the use of LLDPE beads but relates to the production of polystyrene expandable beads, and for this reason alone, there is no motivation for one of ordinary skill in the art to combine the teachings of TAKASAMA and WICHER.

Further, even if one were to assume, *arguendo*, that there is motivation for one of ordinary skill in the art to combine the teachings of TAKASAMA and WICHER this combination would still not result in the claimed subject matter. For example, while in the claimed process the styrene-based monomer is added in two portions to the polymerization reactor, the second portion being added only after a conversion of from 80 to 99.9 % of the first portion has been achieved, WICHER employs all of the styrene already at the beginning of the polymerization and polymerizes the styrene by using two different polymerization initiators which are present from the beginning of the polymerization and are activated at different temperatures.

Further, even if it were assumed that the polymerization of WICHER proceeds in two defined stages it is unknown what the percent conversion of styrene is when the first stage is completed and the second polymerization initiator is activated. It therefore, also is unknown what the amount of second initiator per 100 parts of remaining styrene at the beginning of the second stage is.

Also, the Examiner has not explained why when combining the teachings of TAKASAMA and WICHER, one of ordinary skill in the art would employ the temperature conditions of WICHER for the second stage but not also the temperature conditions for the first stage of the polymerization of WICHER.

It further is noted that TAKASAMA fails to describe a two-step polymerization of excess styrene-based monomer in the modification of LLDPE beads. If excess styrene-based monomer is polymerized in one step, a large amount of styrene homopolymer powder is produced. Therefore the claimed process, producing a smaller amount of homopolymer powder than the process of TAKASAMA, is more advantageous than the process of TAKASAMA.

It is pointed out that WICHER fails to teach or suggest impregnating and polymerizing styrene twice in separate steps. Neither TAKASAMA nor WICHER suggests that it is possible to polymerize a styrene-based monomer in two steps to obtain modified LLDPE beads which are rich in polystyrene. Additionally, neither TAKASAMA nor WICHER suggests that it is possible to obtain beads containing a specific amount of gel component by carrying out the polymerization within a specific temperature range.

Regarding the percentage of gel component (less than 2 wt.-% of graft polymer) recited in present claim 3, the Examiner's attention is directed to the results summarized in Tables 1 and 2 at pages 47 and 48 of the present application which show that the gel content is heavily dependent on the specific reaction conditions employed in the first and second polymerization, wherefore it cannot reasonably be assumed that the percentage of gel component recited in claim 3 would automatically be achieved by using the combined teachings of TAKASAMA and WICHER.

It is submitted that for at least all of the foregoing reasons, the rejection of claims 3 and 5 under 35 U.S.C. 103(a) over TAKASAMA in view of WICHER is unwarranted and should be withdrawn, which action is respectfully requested.

***Response to Rejection of Claim 4 under 35 U.S.C. § 103(a)***

Claim 4 is rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over TAKASAMA in view of SENDA and the prior art allegedly admitted in the present specification.

Applicants note that claim 4 is dependent from claim 1, which the Examiner has incorrectly assumed to be anticipated by TAKASAMA. Applicants further note that the present Office Action does not give any reason as to why TAKASAMA would render the method of claim 1 obvious. Since SENDA does not cure the deficiencies of TAKASAMA with respect to obviousness, claim 4 is not rendered obvious for at least the reason that TAKASAMA in view of SENDA fails to render obvious independent claim 1. In view thereof, Applicants refrain from commenting on the allegations with respect to claim 4 which are set forth in the present Office Action, without admitting however, that any of these allegations is meritorious.

***Response to Rejection of Claims 11, 12, 14 and 15 under 35 U.S.C. § 103(a)***

Claims 11, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over TAKASAMA in view of SMITH and the prior art allegedly admitted in the present specification.

Applicants note that Claims 11, 12, 14 and 15 are (ultimately) dependent from claims 6 and 7. As set forth above, the beads recited in claims 6 and 7 (made by the method of claims 1 and 2, respectively) are not anticipated by TAKASAMA. Moreover, the Examiner has not given any reason as to why TAKASAMA would render the beads of claims 6 and 7 obvious. Since SMITH does not cure the deficiencies of TAKASAMA

with respect to obviousness, claims 11, 12, 14 and 15 are not rendered obvious for at least the reason that TAKASAMA in view of SMITH fails to render obvious claims 6 and 7. In view thereof, Applicants refrain from commenting on the allegations with respect to claims 11, 12, 14 and 15 which are set forth in the present Office Action, without admitting however, that any of these allegations is meritorious.

***Response to Rejection of Claims 9 and 10 under 35 U.S.C. § 103(a)***

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over TAKASAMA in view of SMITH and the prior art allegedly admitted in the present specification.

Applicants respectfully submit that claims 9 and 10 are (ultimately) dependent from claim 5. As set forth above, the beads recited in claim 5 are not anticipated by TAKASAMA. Moreover, the Examiner has not given any reason as to why TAKASAMA would render the beads of claim 5 obvious. Since SMITH does not cure the deficiencies of TAKASAMA with respect to obviousness, claims 9 and 10 are not rendered obvious for at least the reason that TAKASAMA in view of SMITH fails to render obvious independent claim 5. In view thereof, Applicants refrain from commenting on the allegations with respect to claims 9 and 10 which are set forth in the present Office Action, without admitting however, that any of these allegations is meritorious.

***Response to Rejection of Claims 13 and 16 under 35 U.S.C. § 103(a)***

Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over TAKASAMA in view of WICHER and further in view of SMITH and the prior art allegedly admitted in the present specification.

In this regard, it is submitted that because claims 13 and 16 are (ultimately) dependent from claim 8 and the beads recited in claim 8 (obtained by the process of claim 3) are not rendered obvious by TAKASAMA in view of WICHER for at least the reasons stated above, claims 13 and 16 are not rendered obvious by the cited documents for at least all of the reasons set forth above with respect to claim 3 (and claim 8). In view thereof, Applicants refrain from commenting on the allegations with respect to claims 13 and 16 which are set forth in the present Office Action, without admitting however, that any of these allegations is meritorious.

***Response to Provisional Rejection of Claims 1-16 on the Ground of Nonstatutory Obviousness-Type Double Patenting***

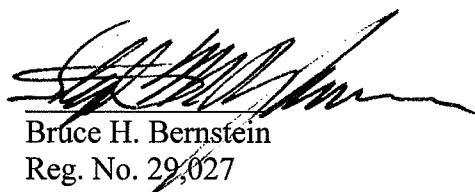
Claims 1-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1 and 3-9 of co-pending application No. 10/541,391.

This rejection is respectfully traversed as well. In this regard, Applicants note that the present Office Action does not provide any explanation at all as to why the present claims allegedly are obvious variants of certain claims of the co-pending application. Specifically, the Examiner has not commented on the differences in the claimed methods as to, e.g., polymerization temperature, content of gel component and one-step vs. two step polymerization.

## CONCLUSION

In view of the foregoing, it is believed that all of the claims in this application are in condition for allowance, which action is respectfully requested. If any issues yet remain which can be resolved by a telephone conference, the Examiner is respectfully invited to contact the undersigned at the telephone number below.

Respectfully Submitted,  
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